



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/612,313	07/02/2003	Dennis A. Kramer	9501-72760	4079
23643	7590	06/01/2006	EXAMINER	
BARNES & THORNBURG 11 SOUTH MERIDIAN INDIANAPOLIS, IN 46204				HANDAL, KAITY V
		ART UNIT		PAPER NUMBER
		1764		

DATE MAILED: 06/01/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>
	10/612,313	KRAMER ET AL.
	<b>Examiner</b>	Art Unit
	Kaitly Handal	1764

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

1)  Responsive to communication(s) filed on 3/22/2006.

2a)  This action is **FINAL**.                    2b)  This action is non-final.

3)  Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

4)  Claim(s) \_\_\_\_\_ is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5)  Claim(s) \_\_\_\_\_ is/are allowed.

6)  Claim(s) 9-19 is/are rejected.

7)  Claim(s) \_\_\_\_\_ is/are objected to.

8)  Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

9)  The specification is objected to by the Examiner.

10)  The drawing(s) filed on \_\_\_\_\_ is/are: a)  accepted or b)  objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)  The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)  Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a)  All    b)  Some \* c)  None of:  
1.  Certified copies of the priority documents have been received.  
2.  Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3.  Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1)  Notice of References Cited (PTO-892)  
2)  Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3)  Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date

4)  Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.

5)  Notice of Informal Patent Application (PTO-152)

6)  Other: \_\_\_\_.

## DETAILED ACTION

### ***Specification***

1. The disclosure is objected to because of the following informalities: Page 9, line 5 the reference number (24) needs to be replaced with reference number (52)  
Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.
3. Claims 9, 12, 14, 17, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Labinov et al. (US 2002/0160238 A1), and further in view of Skala et al. (US 2003/0134166 A1).

With respect to claims 9 and 14, Labinov teaches a fuel reforming system (fig. 6), comprising: a turbocharger having a turbine (expander) (120) with a reformate gas inlet (from reformer (102) as illustrated), and a compressor (106) with a pressurized air outlet (illustrated by arrow from compressor (106) extending to air separator (123)), and a fuel reformer (102), and a reformate gas outlet fluidly coupled to the reformate gas inlet of the turbine (expander) (120) (as illustrated).

Labinov fails to show wherein said fuel reformer (102) has an air inlet fluidly coupled to the pressurized air outlet of the compressor (106). Skala teaches a fuel processor control system (fig. 2A) comprising a fuel processor (54) and an air compressor (64) supplying air to the fuel processor (54) in order to control the supply of air thereto (page 2, paragraph [0028]).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the fuel reformer of Labinov have an air inlet fluidly coupled to the pressurized air outlet of the compressor, as taught by Skala, in order to control the supply of air thereto.

With respect to claims 12 and 17, Labinov teaches wherein the system further comprises an electrical generator having an input coupled to an output of the turbine (expander) (120) (page 5, paragraph [0063], lines 6-9).

With respect to claims 19, Labinov teaches wherein the expander is a turbine (page 5, paragraph [0061], lines 8-10).

4. Claims 10 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Labinov et al. (US 2002/0160238 A1) in view of Skala et al. (US 2003/0134166 A1), as applied to claims 9 and 14 above, and further in view of Surma (US 6,630,113 B1).

With respect to claims 10 and 15, Labinov as modified discloses all claim limitations as set forth above but fails to show wherein the turbine (expander) has a reformate gas outlet fluidly coupled to an intake of an internal combustion engine. Surma teaches a waste treatment system which comprises partial oxidation reformer (col. 62, lines 18-22) a compressor (fig. 1, 46) and an expander/turbine (52) where the latter has a gas outlet fluidly coupled to an intake of an internal combustion engine in order to generate electricity (col. 3, lines 32-35).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to include an internal combustion engine fluidly connected to the gas outlet of the expander/turbine in Labinov's modified apparatus, as taught by Surma, in order to generate electricity.

5. Claims 11, 13, 16 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Labinov et al. (US 2002/0160238 A1) in view of Skala et al. (US 2003/0134166 A1), as applied to claims 9 and 14 above, and further in view of Bromberg et al. (US 2002/0194835 A1).

With respect to claims 11 and 16, Labinov as modified discloses all claim limitations as set forth above but fails to show wherein the expander has a reformate gas outlet fluidly coupled to an emission abatement device. Bromberg teaches an emission abatement system which comprises a plasma fuel converter (fig. 5, 12), providing hydrogen to expander/turbine (26) which has a gas outlet (illustrated) fluidly coupled to an emission abatement device/absorber catalyst (32) which is adapted to treat NO<sub>x</sub> in order to trap NO<sub>x</sub> present in the exhaust (page 2, paragraph [0017], lines 1-8).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to include an emission abatement device coupled to the expander/turbine gas outlet in Labinov's modified apparatus, as taught by Bromberg, in order to trap NO<sub>x</sub> present in the exhaust.

With respect to claims 13 and 18, Labinov as modified discloses all claim limitations as set forth above but fails to show wherein the fuel reformer comprises a plasma fuel reformer. Bromberg teaches wherein fuel reformer comprises a plasma fuel reformer/converter (12) in order to readily transform fuel into hydrogen gas and have an instantaneous turn-on and response in a very compact unit (page 3, paragraph [0028], lines 4-6).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to include a plasma fuel reformer in Labinov's modified apparatus, as taught by Bromberg, in order to readily transform fuel into hydrogen gas and have an instantaneous turn-on and response in a very compact unit.

***Response to Arguments***

**Specification**

Objection made to the specification is maintained due to numbering error, see page 2 of this Office Action.

**Prior Art Rejection**

Applicant's arguments, see Remarks, filed 3/22/2006, with respect to the rejection(s) of claim(s) 9-19 under 35 USC 103 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Labinov et al. and further in view of Skala et al.

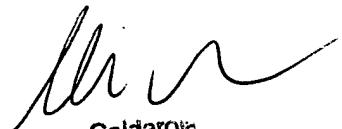
***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kaity Handal whose telephone number is (571) 272-8520. The examiner can normally be reached on M-F 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Calderola can be reached on (571) 272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

5/22/2006

  
Glenn Caldario  
Supervisory Patent Examiner  
Technology Center 1700